Quinupristin/Dalfopristin-Resistant *Enterococcus faecium* Isolated from Human Stools, Retail Chicken, and Retail Pork: EIP Enterococci Project

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Background: With the emergence of vancomycin-resistant *Enterococcus faecium*, quinupristin/dalfopristin (Q/D) has become an important therapeutic for life-threatening enterococcal infections. Q/D was approved for human use in 1999. However, virginiamycin, a Q/D analogue, has been used in food animals since 1974.

Methods: Between July 1998 and June 1999, laboratories in Georgia, Maryland, Minnesota, and Oregon used gram-positive selective media (CNA agar) to culture human stools from outpatients submitted to public health laboratories for other diagnostic reasons (n=334) and from chickens purchased from grocery stores (n=407). From July 1999 until June 2000 Michigan was added to the study and culture of pork samples (n=585) replaced chicken. *Enterococcus* isolates were forwarded to CDC for antimicrobial susceptibility testing by broth microdilution and Q/D-resistant isolates (MIC >= 4 µg/ml) were speciated by biochemical testing.

Results: We examined enterococci isolates isolated from outpatients (n=286), retail chicken (n=984) and retail pork (n=897). Of 119 Q/D-resistant enterococci isolated from humans, 3 (2%) were determined to be *E. faecium*. All 3 of the Q/D-resistant human *E. faecium* isolates had MICs for gentamicin < 250 µg/ml. Of 740 Q/D-resistant enterococci isolated from retail chicken, 299 (40%) were E. faecium. Among the 299 Q/D-resistant *E. faecium* isolates from chicken, 80 (27%) had MICs for gentamicin >= 1000 µg/ml. Q/D resistance was found in 348 of the enterococci isolated from pork. Of the 348 Q/D-resistant pork isolates, 7 (2%) were *E. faecium*. One of the Q/D-resistant pork *E. faecium* isolates had a MIC for gentamycin >= 1000 µg/ml; the other 6 had MICs < 64 µg/ml.

Conclusion: Q/D-resistant *E. faecium* are more common in retail chicken than pork and human populations. Isolates from retail chickens are more likely than Q/D-resistant *E. faecium* from pork or human stools to also express high-level gentamicin resistance. Q/D-resistant *E. faecium* from retail chicken could potentially colonize humans, posing a serious threat to public health. The possibility that genetic determinants for Q/D resistance could be transferred from retail chicken and pork to human enterococcal isolates will be explored further.

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